Weed control with soil- and POST-applied herbicides in field pea. Endres, Gregory J., and Jerrold J. Schneider. Weed control and field pea tolerance to selected soil- and POST-applied herbicides were evaluated in a randomized complete block with four replicates. The experiment was conducted on a Heimdahl-Emrick loam soil with 6.2 pH and 3.3% organic matter at Carrington, ND in 2000. The trial area was cultivated twice on May 4 with a Melroe culti-harrow and harrowed on May 9. Herbicide treatments were made with a hand sprayer to 10 by 25 ft plots. PPI treatments were applied at 17.2 gal/A at 35 psi through 8002 flat fan nozzles on May 9 with 63 F, 32% RH, clear sky, and 7 mph wind. PPI treatments were immediately incorporated twice using a rototiller set at a 3-inch depth. On May 10, inoculated 'Profi' field pea was planted in 7-inch rows at pure live seed rates of 300,000 seeds/A. PRE treatments were applied at 17.2 gal/A at 35 psi through 8002 flat fan nozzles on May 10 with 64 F, 55% RH, 50% cloudy sky, and 11 mph wind on a dry soil surface. A total of 0.42 inches of rainfall occurred during the 1-wk period following application of PRE treatments. POST treatments were applied at 10.3 gal/ at 35 psi through 8001 flat fan nozzles. EPOST (early postemergence) treatments were applied on May 31 with 55 F, 55% RH, 90% cloudy sky, and 5 mph wind to 2- to 3-inch tall field pea, 0.5-inch tall common lambsquarters, redroot and prostrate pigweed, and wild buckwheat, and 2- to 4-leaf yellow and green foxtail. MPOST (mid postemergence) treatments were applied on June 7 with 61 F, 78% RH, 25% cloudy sky, and 3 mph wind to 4- to 6-inch tall field pea, 1- to 2-inch tall common lambsquarters, 0.5- to 1-inch tall redroot and prostrate pigweed, 2- to 8-inch tall wild buckwheat, 4- to 6-inch tall wild mustard, and 2- to 4-leaf yellow and green foxtail. LPOST (late postemergence) treatments were applied on June 16 with 47 F, 78% RH, 95% cloudy sky, and 11 mph wind to 6- to 8-inch tall field pea, 1- to 5-inch tall common lambsquarters, 0.5- to 3-inch tall redroot and prostrate pigweed, 1- to 10-inch tall wild buckwheat, and 3- to 5-leaf yellow and green foxtail. Field pea was harvested with a plot combine on August 10.

Good to excellent (82 to 99%) weed control was achieved with sulfentrazone at 0.5 lb/A, imazethapyr&pendimethalin, and pendamethalin/imazamox+NIS (Table 1). PPI sulfentrazone provided better weed control compared to PRE treatments. Weed control and pea response generally were not impacted by application timing of imazamox. The addition of Quad7 or bentazon+NIS+UAN to imazamox improved control of common lambsquarters compared to imazamox+NIS. Imazamox+Quad7 injured the crop but yield and test weight were greater compared to other imazamox treatments (Table 2). Pea yield with fomesafen was similar to the untreated check due to crop injury and incomplete weed control. (Carrington Research Extension Center, North Dakota Agric. Exp. Stn., North Dakota State Univ., Carrington.)

Table 1. Weed control in field pea (Endres and Schneider).

		2 wk after treatment					4 wk after treatment			
Treatment[a]	Rate	Foxtail spp.[b]	Pigweed CHEAL	Pigweed spp.[c]	Pigweed POLCO	Pigweed SINAR	Foxtail spp.	Pigweed CHEAL	Pigweed spp.	Pigweed POLCO
	(lb/A)	(% control)								
Untreated	---	0	0	0	0	0	0	0	0	0
PPI										
Ethafluralin +metrabuzin	0.75+0.25	95	95	95	89	52	87	89	90	88
Sulfentrazone	0.125	66	99	93	74	49	65	99	98	63
Sulfentrazone	0.25	82	99	98	93	58	71	97	98	81
Sulfentrazone	0.5	87	99	99	96	82	87	99	99	96
Imazethapyr &pendimethalin	0.031+0.4	92	99	99	98	99	88	99	99	97
Pendimethalin/ imazamox +NIS (MPOST)	1.5/0.031 +0.025%	95	84	97	84	99	89	89	99	93
PRE										
Sulfentrazone	0.125	51	49	61	40	0	40	45	51	30
Sulfentrazone	0.25	78	66	77	65	75	61	70	73	66
Sulfentrazone	0.5	81	92	90	74	48	80	99	96	90
EPOST										
Imazamox+NIS	0.031+0.25%	93	66	94	65	99	79	65	91	65
MPOST										
Imazethapyr +NIS	0.031+0.25%	93	69	80	74	98	80	65	80	74
Imazamox+NIS	0.031+0.25%	85	65	92	69	99	72	54	93	72
Imazamox +Quad7	0.031+1%	94	85	97	72	99	87	76	97	71
Imazamox +bentazon +NIS+UAN	0.031+0.125 +0.25%+1qt	94	96	98	75	99	84	76	96	70
Imazamox +bentazon +NIS+UAN	0.031+0.25 +0.25%+1qt	93	96	98	75	99	83	88	92	74
Fomesafen	0.25+0.25%	0	12	91	46	99	0	33	87	18
LPOST										
Imazamox+NIS	0.031+0.25%	94	64	90	50	99	94	60	93	65
LSD (0.05)		11	16	6	11	19	10	13	9	13

[a]NIS=Class Preference, a nonionic surfactant from Cenex, St. Paul, MN; Quad7=a surfactant blend from AGSCO, GrandForks, ND; UAN=Class APM 28, a surfactant+fertilizer from Cenex, St. Paul, MN.

[b]Foxtail spp.=Yellow and green.

[c]Pigweed spp.=Redroot and prostrate.

Table 2. Field pea response to herbicide treatments (Endres and Schneider).

Treatment[a]	Rate	Injury		Seed yield	Test weight
		2 WAT	4 WAT		
	(lb/A)	---------- (%) ----------		(bu/A)	(lb/bu)
Untreated		0	0	28.9	64.0
PPI					
Ethafluralin+metrabuzin	0.75+0.25	0	0	33.1	63.0
Sulfentrazone	0.125	0	0	33.4	63.7
Sulfentrazone	0.25	0	0	36.3	62.9
Sulfentrazone	0.5	1	0	34.3	63.1
Imazethapyr&pendimethalin	0.031+0.4	0	0	39.0	63.1
Pendimethalin/imazamox+NIS (MPOST)	1.5/0.031+0.025%	0	0	36.1	62.9
PRE					
Sulfentrazone	0.125	0	0	32.5	64.0
Sulfentrazone	0.25	0	0	33.0	63.0
Sulfentrazone	0.5	2	0	33.7	63.3
EPOST					
Imazamox+NIS	0.031+0.25%	0	0	34.9	63.8
MPOST					
Imazethapyr+NIS	0.031+0.25%	0	0	33.1	63.4
Imazamox+NIS	0.031+0.25%	0	0	31.5	63.7
Imazamox+Quad7	0.031+1%	28	9	39.0	64.8
Imazamox+bentazon+NIS+UAN	0.031+0.125+0.25%+1qt	0	0	32.7	63.5
Imazamox+bentazon+NIS+UAN	0.031+0.25+0.25%+1qt	4	0	35.5	63.9
Fomesafen	0.25+0.25%	21	8	30.1	64.4
LPOST					
Imazamox+NIS	0.031+0.25%	0	0	32.5	64.3
LSD (0.05)		3	2	3.5	0.7

[a]NIS=Class Preference, a nonionic surfactant from Cenex, St. Paul, MN; Quad7=a surfactant blend from AGSCO, GrandForks, ND; UAN=Class APM 28, a surfactant+fertilizer from Cenex, St. Paul, MN.